

LASER POINTER AS AUXILIARY SIGHT OF FIREARM

BACKGROUND OF THE INVENTION

(1) Field of the Invention

5 The present invention relates to laser pointers and more particularly to a laser pointer used as an auxiliary sight of firearm (e.g., rifle) for aiding the eyes to quickly aim at a target.

(2) Description of Related Art

A conventional laser pointer 50 is a battery operated, lightweight device as shown
10 in Fig.1. The laser pointer 50 comprises a front, internal light emitting mechanism 51 capable of emitting a laser beam on an objective. The prior laser pointer 50 is mounted on a seat of a firearm (e.g., rifle) for aiding the eyes to aim at a target. The laser pointer 50 is designed to be adjustable so that the laser beam emitted from the light emitting mechanism 51 can aid the eyes to line up the rifle on its target. The adjustment of the
15 light emitting mechanism 51 is described below by referring to Fig.2. A plurality of screws 52 are provided at a rear portion of the light emitting mechanism 51. Each screw 52 is driven from an outer surface of a cylindrical housing 53 of the laser pointer 50 inside to contact the light emitting mechanism 51. The position of the light emitting mechanism 51 inside the laser pointer 50 can be adjusted by suitably driving the screws
20 52 different depths or the same depth in the housing 53. Accordingly, the laser beam direction and a light spot of the laser beam on the target can be changed.

However, the prior art suffered from a disadvantage. For example, changes of both the laser beam in a horizontal direction and/or a vertical direction and thus the light spot are done by adjusting the plurality of screws 52 one by one. It is time consuming and
25 tedious. Hence, a need for improvement exists.

SUMMARY OF THE INVENTION

- It is an object of the present invention to provide a laser pointer mounted on a seat of a firearm as an auxiliary sight, comprising a cylindrical housing comprising a forward aperture; a light emitting mechanism within the housing, the light emitting mechanism having a forward end fastened in the housing, the light emitting mechanism being adapted to emit laser beam through the aperture to impinge on a target; and an adjustment ring rotatably put on the housing, the adjustment ring comprising an outer knurled ring having a hole to permit a positioning fastener to drive through to urge the housing for fastening the corrected adjustment ring, and an inner cam ring comprising a projection on its outer surface to permit a fastener to drive through to threadedly secure to the knurled ring, an eccentric bore with a rear portion of the light emitting mechanism received therein, and a rear narrow shoulder as a stop. In operation, a rifle user can rotate the adjustment ring to adjust the laser beam direction and thus the light spot of the laser beam on the target. As such, it is possible of aiding the eyes to quickly line up the firearm on the target by only firing one or several shots.
- 15 The above and other objects, features and advantages of the present invention will become apparent from the following detailed description taken with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

- 20 Fig.1 is a cross-sectional view of a conventional laser pointer as an auxiliary sight of firearm;
- Fig.2 is another cross-sectional view of the rear portion of a light emitting mechanism of the Fig.1 laser pointer illustrating position adjustment of the light emitting mechanism by means of four screws;
- 25 Fig.3 is a perspective view of a preferred embodiment of laser pointer mounted on a seat of a firearm according to the invention;
- Fig.4 is an exploded view of Fig.3;

- Fig.5 is a cross-sectional view taken along line A-A of the Fig.3;
- Fig.6 is a cross-sectional view taken along line B-B of the Fig.3;
- Fig.7 is a cross-sectional view similar to Fig.6 for illustrating position adjustment of a light emitting mechanism of the laser pointer according to the invention; and
- 5 Fig.8 is an environmental view of the laser pointer mounted on a rifle as an auxiliary sight of the rifle.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to Figs.3, 4 and 5, a cylindrical laser pointer 1 constructed in accordance 10 with the invention is shown. The laser pointer 1 is used as an auxiliary sight of a front sight of firearm (e.g., rifle). The laser pointer 1 comprises a housing 11 having an internal space for receiving a light emitting mechanism 12 and a cell (not shown) for supplying electrical energy to the light emitting mechanism 12 to emit light (e.g., laser beam in the embodiment) on an objective. A front end of the light emitting mechanism 15 12 is fastened in a bore 111 of the housing 11. Laser beam emitted from the front end of the light emitting mechanism 12 passes through a front aperture 112 of the housing 11. An interior cavity 113 of the housing 11 is formed to provide an allowance in adjusting the position of the light emitting mechanism 12 and thus the laser beam direction.

An adjustment ring 13 is provided at an intermediate section of the housing 11. In 20 detail, the adjustment ring 13 is put on the housing 11 and is rotatable thereabout. The adjustment ring 13 comprises an outer knurled ring 131 and an inner cam ring 132 put on an annular groove 114 of the housing 11. The cam ring 132 comprises a holed projection 133 on its outer surface so that a screw 134 or any of other suitable fasteners can be employed to drive through a hole of the knurled ring 131 into the projection 133 25 for fastening the knurled ring 132 and the cam ring 131 together.

Referring to Fig.6 in conjunction with Fig.4, the cam ring 132 further comprises an eccentric bore 135 with a rear portion of the light emitting mechanism 12 received

therein. Further, the light emitting mechanism 12 is held in place inside the housing 11 by the cam ring 131 and the bore 111. The cam ring 132 further comprises a narrow shoulder 136 at its rear end to prevent the light emitting mechanism 12 from passing through the rear end of the cam ring 132 to disengage from the bore 111.

- 5 Referring to Fig.7 in conjunction with Fig.6, a rotation (e.g., 60 degrees either clockwise or counterclockwise) of the adjustment ring 13 (i.e., the knurled ring 131) causes the light emitting mechanism 12 to move laterally in the eccentric bore 135 (as indicated by distance D). As a result, the laser beam direction of the light emitting mechanism 12 can be changed.
- 10 Referring to Fig.8, the laser pointer 1 is mounted on a seat 2 of rifle 3 as an auxiliary sight of a front sight of the rifle 3. In operation, a rifle user can rotate the adjustment ring 13 to adjust the laser beam direction of the light emitting mechanism 12 and thus the light spot of the laser beam on a target. As such, it is possible of aiding the eyes to quickly line up the rifle 2 on the target by only firing one or several shots.
- 15 Moreover, the corrected adjustment ring 13 can be fastened by simply driving a positioning screw 137 through the knurled ring 131 to secure to the housing 11.

While the invention herein disclosed has been described by means of specific embodiments, numerous modifications and variations could be made thereto by those skilled in the art without departing from the scope and spirit of the invention set forth in
20 the claims.